REMARKS

Reconsideration and allowance of the present application are respectfully requested. Claims 1-20 remain pending in the application.

In numbered paragraph 1 on page 2 of the Office Action, the title is objected to as non-descriptive. By the foregoing amendment, a new title has been submitted such that withdrawal of this objection is requested.

In numbered paragraphs 2-3 of the Office Action, minor objections are raised with respect to claims 7, 10 and 18-20. By the foregoing amendment, the specific objections raised by the Examiner have been addressed, such that withdrawal of these objections is requested.

In numbered paragraph 5 of the Office Action, various claims were rejected under 35 U.S.C. §112, second paragraph because they recite the phrase "external queue" rather than "listen queue". This rejection is respectfully traversed, as the specification provides support the phrase "external queue". For example, specification page 4, lines 14-16 describe an exemplary "external queue" as a queue external to a TCP/IP-based application system. Specification page 7, lines 12-13 describe an exemplary embodiment wherein a listen queue 42 is described as being external to a server application system 44. Thus, there is no ambiguity or indefiniteness in claims which recite an "external queue"; this phrase is supported by the specification and encompasses exemplary embodiments set forth therein.

In numbered paragraph 6 of the Office Action, a minor objection is raised with respect to claims 10, 12 and 19. By the foregoing amendment, the specific objection raised has been addressed, such that withdrawal of this objection is requested.

In numbered paragraph 8 of the Office Action, various claims are rejected under 35 U.S.C. §112, first paragraph based upon a recitation in the claims of an "external queue". For reasons discussed above, the use of the phrase "external queue" in the claims is appropriate, and withdrawal of this rejection is respectfully requested.

In numbered paragraph 10 of the Office Action, claims 1-10 are rejected under 35 U.S.C. §102(e) as being anticipated by U.S. Patent No. 6,321,272 (Swales). This rejection is respectfully traversed, as Applicants' independent claims 1 and 14 recite features that are neither taught nor suggested by the Swales patent.

Figure 3 shows an exemplary embodiment described in Applicants' specification wherein a data server system 40 includes a server application system 44 connected to kernal 41 external to the server application system. The kernal 41 includes an external TCP listen queue 42 that is external to the server application system 44 and that receives and stores external TCP connection requests for the data server system 40 before the requests are fetched into the server application system 44 for processing. The server application system 44 includes a network interaction module 45 connected to the server application module 46 and to the external listen queue 42. The network interaction module 45 fetches external connection requests stored in the external listen queue 42 into the

network interaction module 45, thus allowing fetched requests to be screened by the server application system 44 before they are serviced.

As described in the first full paragraph on specification page 10, exemplary embodiments avoid overflow in the external listen queue 42. The fetched external requests by the network interaction module 45 can be stored in an internal queue, such as the internal queue 62 of Applicants' Figure 4. The network interaction module 45 determines which fetched requests will not be processed by the application module 46 based on the processing capacity of the application module 46 and the rate of the external requests arriving at the listen queue 42. The network interaction module 45 can thus reject those external requests which are not to be processed.

Exemplary embodiments can minimize a response time of the server application system 44 to external requests, and can minimize the number of requests dropped out of the external listen queue 42. These features of the exemplary Figure 3 embodiment are neither taught nor suggested by the Swales patent, such that the Swales patent fails to provide any teaching or suggestion of features recited in Applicants' independent claims 1 and 14.

Claim 1 generally encompasses the exemplary embodiments described above. Claim 1 recites a TCP/IP-based application system which includes, among other features, a network interaction module coupled to an application module and an external queue to fetch external requests from the external queue into the application system, and to determine which, if any, of the fetched requests will not be processed by the application

module based on the processing capacity of the application module and the rate of the external requests arriving at the external queue. Exemplary embodiments are directed to monitoring the capacity of an application module, such as the server application module 46, and monitoring the rate external requests arrive at an external queue. Exemplary embodiments can ensure that client requests to a server will be acknowledged so that process delays due to a heavy demand on a server will not be misinterpreted as an overload of the network interconnect.

In contrast, the Swales patent is directed to a system which is not concerned with monitoring the capacity of an application module, such as a server application module, or the rate of external requests arriving at an external queue. Rather, the Swales patent is directed to monitoring the capacity of a network, such as the Internet 14 of Figure 1 in the Swales patent which interconnects a client computer 8 with a server 20 of a website 4. The Swales patent describes using conventional techniques such as TCP and proxies that result in dropped connections, and in a client backing off from sending requests when requests made by the client go unacknowledged.

As described at column 4, beginning with line 8 of the Swales patent, Swales discloses that server 20 uses TCP in conjunction with IP, through TCP/IP stack 24, to Interact with network interface 16 in application program 22. This portion of the Swales patent describes data transfer between the application program 22 and the user 2 through the Internet 14. The Swales patent is directed to monitoring delays due to traffic on the Internet connection, and is not concerned with the capacity of the server to respond to the

requests received over the Internet. The Swales patent, therefore, fails to teach or suggest, among other features, determining which requests will not be processed by an application module **based on the processing capacity of the application module and the rate of the external requests arriving at an external queue**.

To the contrary, the Swales patent is concerned with maintaining real-time behavior on a network, such as the "deterministic network" of Figure 6, and this patent describes using flow control in the system to restrict traffic flow. The Swales patent does not teach or suggest situations wherein a number of requests reaching a website, such as website 4, via Internet 14 exceed the capacity of the website. This patent provides numerous examples where network loading is restricted by using known TCP and proxies (see, for example, Figure 5 and accompanying discussion in columns 10-13).

For example, in column 12, lines 21-22, the Swales patent describes flow control by using standard TCP and proxy techniques for achieving flow control. TCP achieves flow control by dropping packets before they are acknowledged by a server. TCP forces clients to back-off sending data using, for example, an exponential back-off algorithm. This is precisely the functional behavior which exemplary embodiments of the present invention are directed to minimizing. That is, exemplary embodiments of the present invention are directed to monitoring the processing capacity of an application module and the rate of external requests arriving at an external queue to selectively decide which requests to process.

The Swales patent uses terms such as "closed connections", "dropped connections" and "aborted connections" in describing the deterministic network 136 of Figure 6 and the applications on it. However, column 7, lines 11-14 of the Swales patent describe using a TCP/IP stack with the Berkley interface having signal extensions, and this is a standard socket interface that allows for packet dropping and TCP/IP back-off for flow control. According to column 5, lines 38-44 of the Swales patent, packets are dropped if no transmit buffer is available in the TCP/IP stack.

In other words, the Swales patent is directed to providing a network connection whereby client requests are sent to a server. Where those requests are not acknowledged in a given period of time, the client begins to slow down the time period over which it sends additional requests. Thus, the client is responsible for controlling the amount of traffic flow on the network.

This is in contrast to exemplary embodiments of the present invention which are directed to addressing server load. Where a particular server is busy, exemplary embodiments will queue requests from one or more clients and allow a network interaction module to determine which, if any, of those requests will not be processed. This determination is made based on the processing capacity of the application module (e.g., the server) and the rate at which external requests are arriving at an external queue. Exemplary embodiments can thereby avoid, or minimize the occurrence of dropped packets using techniques such as the TCP and proxy functions described in the Swales patent.

As such, claim 1 is considered allowable over the Swales patent.

Similarly, claim 14 is considered allowable over the Swales patent. Claim 14 recites, among other features, rejecting requests not to be processed such that the possibility of dropping a request from an external queue is minimized and the response time of the application system to the requests is minimized. In other words, exemplary embodiments are directed to avoiding, or minimizing, the dropping of packets by specifically rejecting requests not to be processed, rather than simply dropping requests as is done in the Swales system. Exemplary embodiments will close a connection for which a server is too busy to handle, rather than simply fail to respond and initiate a back-off procedure using the conventional TCP and proxy techniques described in the Swales patent. As such, claim 14 is also considered allowable.

The remaining claims depend from independent claims 1 and 14 and recite additional advantageous features which are further considered allowable. If there are questions regarding the above, it is respectfully requested that the undersigned be contacted at the number shown below.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

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By: _____
Patrick G. Keane
Registration No. 32,858

P.O. Box 1404
Alexandria, Virginia 22313-1404
(703) 836-6620